

Long-term Temperature Measurements of the Upper Troposphere and Lowermost Stratosphere with MOZAIC and IAGOS

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An important component of numerical weather prediction models is the assimilation of in-situ temperature measurements on a global scale. The sources of temperature data are retrievals from various satellite instruments, and in-situ radiosonde and commercial aircrafts measurements. The European Research Infrastructure IAGOS (In-service Aircraft for a Global Observing System) operates a global-scale monitoring system for meteorological and atmospheric trace gases at high spatial resolution by instrumented passenger aircrafts.

We will present in-situ airborne temperature measurements at cruise level by IAGOS/MOZAIC since 1994. The temperature measurements are obtained through a Pt100 built into a VAISALA capacity hygrometer, and they are independent, which means the measurements are not assimilated in numerical weather prediction models. The accuracy is better than the in-general installed temperature sensors on commercial aircrafts. We will show an inter-comparison between the ERA-Interim temperature data against the Pt100 measurements for different atmospheric layers (upper troposphere, tropopause, lowermost stratosphere) and focus on the northern and mid-latitude regions.